RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10 644,052 A

Source: II WO

Date Processed by STIC: 11-17-04

ENTERED

RAW SEQUENCE LISTING   DATE: 11/17/2004
PATENT APPLICATION: **US/10/644,052A**   TIME: 16:09:51

Input Set : **A:\C1037.70048US00seq.txt**
Output Set: **N:\CRF4\11172004\J644052A.raw**

```
 3 <110> APPLICANT: Krieg, Arthur M
 4        Samulowitz, Ulrike
 5        Vollmer, Joerg
 6        Uhlmann, Eugen
 7        Jurk, Marion
 8        Lipford, Grayson
 9        Rankin, Robert
11 <120> TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS
13 <130> FILE REFERENCE: C1037.70048US00
15 <140> CURRENT APPLICATION NUMBER: US 10/644,052A
16 <141> CURRENT FILING DATE: 2003-08-19
18 <150> PRIOR APPLICATION NUMBER: US 60/404,479
19 <151> PRIOR FILING DATE: 2002-08-19
21 <150> PRIOR APPLICATION NUMBER: US 60/404,820
22 <151> PRIOR FILING DATE: 2002-08-19
24 <150> PRIOR APPLICATION NUMBER: US 60/429,701
25 <151> PRIOR FILING DATE: 2002-11-27
27 <150> PRIOR APPLICATION NUMBER: US 60/447,377
28 <151> PRIOR FILING DATE: 2003-02-14
30 <160> NUMBER OF SEQ ID NOS: 388
32 <170> SOFTWARE: PatentIn version 3.2
34 <210> SEQ ID NO: 1
35 <211> LENGTH: 17
36 <212> TYPE: DNA
37 <213> ORGANISM: Artificial sequence
39 <220> FEATURE:
41 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
43 <400> SEQUENCE: 1
44 acgtcgtttt cgtcgtt                                      17
47 <210> SEQ ID NO: 2
48 <211> LENGTH: 16
49 <212> TYPE: DNA
50 <213> ORGANISM: Artificial sequence
52 <220> FEATURE:
54 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
56 <400> SEQUENCE: 2
57 gcgtcgacgt cgacgc                                       16
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63 <212> TYPE: DNA
64 <213> ORGANISM: Artificial sequence
66 <220> FEATURE:
68 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
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76 <212> TYPE: DNA
77 <213> ORGANISM: Artificial sequence
79 <220> FEATURE:
81 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
83 <400> SEQUENCE: 4
84 tccatgacgt tcctgatgc                                                 19
87 <210> SEQ ID NO: 5
88 <211> LENGTH: 17
89 <212> TYPE: DNA
90 <213> ORGANISM: Artificial sequence
92 <220> FEATURE:
94 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
96 <400> SEQUENCE: 5
97 tcgtcgtttt cgtcgtt                                                   17
100 <210> SEQ ID NO: 6
101 <211> LENGTH: 22
102 <212> TYPE: DNA
103 <213> ORGANISM: Artificial sequence
105 <220> FEATURE:
107 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
109 <400> SEQUENCE: 6
110 tcgtcgtttt cggcggccgc cg                                            22
113 <210> SEQ ID NO: 7
114 <211> LENGTH: 17
115 <212> TYPE: DNA
116 <213> ORGANISM: Artificial sequence
118 <220> FEATURE:
120 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
122 <400> SEQUENCE: 7
123 tcgtcgtttt cgtcgtt                                                  17
126 <210> SEQ ID NO: 8
127 <211> LENGTH: 16
128 <212> TYPE: DNA
129 <213> ORGANISM: Artificial sequence
131 <220> FEATURE:
133 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
135 <400> SEQUENCE: 8
136 tcgtcgtttc gtcgtt                                                   16
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140 <211> LENGTH: 17
141 <212> TYPE: DNA
142 <213> ORGANISM: Artificial sequence
144 <220> FEATURE:
146 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
148 <400> SEQUENCE: 9
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       166 <211> LENGTH: 17
       167 <212> TYPE: DNA
       168 <213> ORGANISM: Artificial sequence
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       179 <211> LENGTH: 24
       180 <212> TYPE: DNA
       181 <213> ORGANISM: Artificial sequence
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       188 <221> NAME/KEY: misc_feature
       189 <222> LOCATION: (3)..(3)
       190 <223> OTHER INFORMATION: deazaguanine
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       194 <222> LOCATION: (6)..(6)
       195 <223> OTHER INFORMATION: deazaguanine
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       203 <212> TYPE: DNA
       204 <213> ORGANISM: Artificial sequence
       206 <220> FEATURE:
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       211 <221> NAME/KEY: misc_feature
       212 <222> LOCATION: (3)..(3)
       213 <223> OTHER INFORMATION: deazaguanine
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       216 <221> NAME/KEY: misc_feature
       217 <222> LOCATION: (22)..(22)
       218 <223> OTHER INFORMATION: deazaguanine
       220 <400> SEQUENCE: 13
W-->   221 tcntcgtttt gtcgttttgt cntt                                        24
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RAW SEQUENCE LISTING
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TIME: 16:09:51

Input Set : A:\C1037.70048US00seq.txt
Output Set: N:\CRF4\11172004\J644052A.raw

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227 <213> ORGANISM: Artificial sequence
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231 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
233 <400> SEQUENCE: 14
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237 <210> SEQ ID NO: 15
238 <211> LENGTH: 21
239 <212> TYPE: DNA
240 <213> ORGANISM: Artificial sequence
242 <220> FEATURE:
244 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
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247 tcgtcgtttt acgacgtcgc g                                                     21
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251 <211> LENGTH: 21
252 <212> TYPE: DNA
253 <213> ORGANISM: Artificial sequence
255 <220> FEATURE:
257 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
259 <400> SEQUENCE: 16
260 tcgtcgtttt acgacgtcgt g                                                     21
263 <210> SEQ ID NO: 17
264 <211> LENGTH: 24
265 <212> TYPE: DNA
266 <213> ORGANISM: Artificial sequence
268 <220> FEATURE:
270 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
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273 tcgtcgtttt acggcgccgc gccg                                                  24
276 <210> SEQ ID NO: 18
277 <211> LENGTH: 72
278 <212> TYPE: DNA
279 <213> ORGANISM: Artificial sequence
281 <220> FEATURE:
283 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
285 <220> FEATURE:
286 <221> NAME/KEY: misc_feature
287 <222> LOCATION: (1)..(10)
288 <223> OTHER INFORMATION: n is a, c, g, or t with a phosphorothioate link, wherein any
of one
289        to seven n may be absent.
291 <220> FEATURE:
292 <221> NAME/KEY: misc_feature
293 <222> LOCATION: (11)..(30)
294 <223> OTHER INFORMATION: n is a, c, g, or t, wherein any of one to twenty n may be
absent.
296 <220> FEATURE:
297 <221> NAME/KEY: misc_feature
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RAW SEQUENCE LISTING   DATE: 11/17/2004
PATENT APPLICATION: US/10/644,052A   TIME: 16:09:51

Input Set : A:\C1037.70048US00seq.txt
Output Set: N:\CRF4\11172004\J644052A.raw

    298 <222> LOCATION: (43)..(62)
    299 <223> OTHER INFORMATION: n is a, c, g, or t, 0-20 nucleotides, wherein any of one to
twenty n may be absent.
    301 <220> FEATURE:
    302 <221> NAME/KEY: misc_feature
    303 <222> LOCATION: (63)..(72)
    304 <223> OTHER INFORMATION: n is a, c, g, or t with a phosphorothioate link, wherein any
of one
    305   to seven n may be absent.
    307 <400> SEQUENCE: 18
W--> 308
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn gtcgttgtcg ttnnnnnnnn nnnnnnnnnn nnnnnnnnnn nn
    310 <210> SEQ ID NO: 19
    311 <211> LENGTH: 84
    312 <212> TYPE: DNA
    313 <213> ORGANISM: Artificial sequence
    315 <220> FEATURE:
    317 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
    319 <220> FEATURE:
    320 <221> NAME/KEY: misc_feature
    321 <222> LOCATION: (1)..(10)
    322 <223> OTHER INFORMATION: n is a, c, g, or t, with a phosphorothioate link, wherein
any of one
    323   to seven n may be absent.
    325 <220> FEATURE:
    326 <221> NAME/KEY: misc_feature
    327 <222> LOCATION: (11)..(30)
    328 <223> OTHER INFORMATION: n is a, c, g, or t, wherein any of one to twenty n may be
absent.
    330 <220> FEATURE:
    331 <221> NAME/KEY: misc_feature
    332 <222> LOCATION: (55)..(64)
    333 <223> OTHER INFORMATION: n is a, c, g, or t, wherein any of one to twenty n may be
absent.
    335 <220> FEATURE:
    336 <221> NAME/KEY: misc_feature
    337 <222> LOCATION: (65)..(84)
    338 <223> OTHER INFORMATION: n is a, c, g, or t, with a phosphorothioate link, wherein
any of one
    339   to seven n may be absent.
    341 <400> SEQUENCE: 19
W--> 342
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn gtcgttgtcg ttgtcgttgt cgttnnnnnn nnnnnnnnnn nnnnnnnnnn nnnn
    345 <210> SEQ ID NO: 20
    346 <211> LENGTH: 90
    347 <212> TYPE: DNA
    348 <213> ORGANISM: Artificial sequence
    350 <220> FEATURE:
    353 <223> OTHER INFORMATION: Synthetic Oligodeoxynucleotide
    355 <220> FEATURE:
    356 <221> NAME/KEY: misc_feature
    357 <222> LOCATION: (1)..(10)
    358 <223> OTHER INFORMATION: n is a, c, g, or t, with a phosphorothioate link, wherein

any of one
```
359        to seven n may be absent.
361 <220> FEATURE:
362 <221> NAME/KEY: misc_feature
363 <222> LOCATION: (11)..(30)
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 11/17/2004
PATENT APPLICATION: US/10/644,052A   TIME: 16:09:52

Input Set : A:\C1037.70048US00seq.txt
Output Set: N:\CRF4\11172004\J644052A.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

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Seq#:12; N Pos. 3,6
Seq#:13; N Pos. 3,22
Seq#:18; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:18; N Pos. 24,25,26,27,28,29,30,43,44,45,46,47,48,49,50,51,52,53,54,55
Seq#:18; N Pos. 56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72
Seq#:19; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:19; N Pos. 24,25,26,27,28,29,30,55,56,57,58,59,60,61,62,63,64,65,66,67
Seq#:19; N Pos. 68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84
Seq#:20; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:20; N Pos. 24,25,26,27,28,29,30,61,62,63,64,65,66,67,68,69,70,71,72,73
Seq#:20; N Pos. 74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90
Seq#:28; N Pos. 6,19
Seq#:51; N Pos. 11,14
Seq#:57; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:57; N Pos. 24,25,26,27,28,29,30,67,68,69,70,71,72,73,74,75,76,77,78,79
Seq#:57; N Pos. 80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96
Seq#:58; N Pos. 19,22
Seq#:60; N Pos. 10
Seq#:61; N Pos. 10
Seq#:66; N Pos. 7,8,9,15,16,17,18
Seq#:74; N Pos. 4,18,20
Seq#:272; N Pos. 10
Seq#:273; N Pos. 10
Seq#:274; N Pos. 10
Seq#:277; N Pos. 4,18,20
Seq#:278; N Pos. 4,18,20
Seq#:279; N Pos. 7,8,9,15,16,17,18
Seq#:280; N Pos. 7,8,9,15,16,17,18
Seq#:296; N Pos. 13,16
Seq#:301; N Pos. 7,14,17
Seq#:302; N Pos. 6,13,16
Seq#:303; N Pos. 6,13,16
Seq#:306; N Pos. 7,8,9,12,15,16,17,20
Seq#:307; N Pos. 7,8,9,12,15,16,17,20
Seq#:308; N Pos. 12,20
Seq#:309; N Pos. 7,8,9,15,16,17
Seq#:311; N Pos. 4,7,8,11
Seq#:312; N Pos. 4,7,8,11,12,15
Seq#:315; N Pos. 6,13
Seq#:318; N Pos. 4,5,8,9,14
Seq#:331; N Pos. 4,5,8,9,14
Seq#:332; N Pos. 6,13
Seq#:378; N Pos. 1,8,9,10,11,12,13,14,15,16,17,18,19,20
Seq#:379; N Pos. 1,8,9,10,11,12,13,14,15,16,17,18,19,20
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 11/17/2004
PATENT APPLICATION: **US/10/644,052A**   TIME: 16:09:52

Input Set : **A:\C1037.70048US00seq.txt**
Output Set: **N:\CRF4\11172004\J644052A.raw**

Seq#:380; N Pos. 1,8,9,10,11,12,13,14,15,16,17,18,19
Seq#:381; N Pos. 1,8,9,10,11,12,13,14,15,16,17,18,19
Seq#:382; N Pos. 1,8,9,10,11,12
Seq#:383; N Pos. 1,8,9,10,11,12
Seq#:384; N Pos. 1,10,11,12
Seq#:385; N Pos. 1,10,11,12

Invalid Line Length:
The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:18; Line(s) 299,308
Seq#:19; Line(s) 342
Seq#:20; Line(s) 378
Seq#:57; Line(s) 906

VERIFICATION SUMMARY   DATE: 11/17/2004
PATENT APPLICATION: **US/10/644,052A**   TIME: 16:09:52

Input Set : **A:\C1037.70048US00seq.txt**
Output Set: **N:\CRF4\11172004\J644052A.raw**

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L:198  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0
L:221  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0
L:308  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0
L:342  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0
L:378  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:0
L:493  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:0
L:806  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51 after pos.:0
L:906  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57 after pos.:0
L:930  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58 after pos.:0
L:962  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60 after pos.:0
L:980  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:0
L:1056 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66 after pos.:0
L:1175 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:74 after pos.:0
L:3558 M:283 W: Missing Blank Line separator, <400> field identifier
L:3787 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:272 after pos.:0
L:3805 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:273 after pos.:0
L:3823 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:274 after pos.:0
L:3877 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:277 after pos.:0
L:3905 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:278 after pos.:0
L:3928 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:279 after pos.:0
L:3951 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:280 after pos.:0
L:4171 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:296 after pos.:0
L:4251 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:301 after pos.:0
L:4279 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:302 after pos.:0
L:4307 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:303 after pos.:0
L:4367 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:306 after pos.:0
L:4400 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:307 after pos.:0
L:4423 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:308 after pos.:0
L:4446 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:309 after pos.:0
L:4487 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:311 after pos.:0
L:4520 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:312 after pos.:0
L:4570 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:315 after pos.:0
L:4624 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:318 after pos.:0
L:4813 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:331 after pos.:0
L:4836 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:332 after pos.:0
L:5451 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:378 after pos.:0
L:5474 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:379 after pos.:0
L:5497 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:380 after pos.:0
L:5520 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:381 after pos.:0
L:5543 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:382 after pos.:0
L:5568 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:383 after pos.:0
L:5592 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:384 after pos.:0
L:5615 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:385 after pos.:0
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